IN THE CLAIMS

The following are Claims 1-28.

1. (currently amended) An automatic gain control system comprising:

an automatic gain control core circuit adapted to apply a gain to an input signal to provide an output signal;

a power detector circuit adapted to receive the output signal and provide a first signal which indicates a power level of the output signal; and

a processor adapted to control the gain of the automatic gain control core circuit based on the first signal, wherein the processor provides a calibration signal to the power detector circuit to calibrate a reference level for the system.

2. (original) The system of Claim 1, further comprising an analog-to-digital converter adapted to receive the first signal from the power detector circuit and provide the first signal as a digital signal to the processor.

3. (canceled)

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3/4. (currently amended) The system of Claim 1 ~~3~~, further comprising a digital-to-analog converter adapted to receive the calibration signal and provide the calibration signal as an analog signal to the power detector circuit.

4/5. (currently amended) The system of Claim 1 ~~3~~, further comprising:

a first switch, coupled between the processor and the power detector circuit, adapted to be closed by the processor during a calibration mode of the system to calibrate the reference level; and

a second switch, coupled between the automatic gain control circuit and the power detector circuit, adapted to be closed by the processor during a continuous automatic gain control mode of the system.

5/6. (original) The system of Claim 1, wherein the power detector circuit comprises:

a correlator; and

a low pass filter coupled to the correlator to determine the power level of the output signal.

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6~~7~~. (original) The system of Claim 1, wherein the processor provides a coarse gain control signal and a fine gain control signal to the automatic gain control core circuit to control the gain.

7~~8~~. (original) The system of Claim 6~~7~~, wherein the automatic gain control core circuit comprises a plurality of gain stages, with each of the gain stages having a plurality of transconductance stages.

8~~9~~. (original) The system of Claim 7~~8~~, wherein the fine gain control signal controls a bias current value for the transconductance stages, and the coarse gain control signal selects which of the transconductance stages contribute to the gain.

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9~~10~~. (original) The system of Claim 7~~8~~, wherein the plurality of transconductance stages for each gain stage is associated with at least one load impedance.

10~~11~~. (original) The system of Claim 9~~10~~, wherein the load impedance comprises a shunt, a shunt-series, a series-shunt, a series-shunt-series, a T-coil, a T-coil with a cross-coupled capacitor, or a series-T-coil.

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~~12~~. (original) An automatic gain control circuit comprising:

an amplifier adapted to apply a gain to an input signal to provide an output signal;

a detector adapted to receive the output signal and provide a first signal based on the output signal; and

a processor adapted to provide a coarse gain control signal and a fine gain control signal to the amplifier based on the first signal to control the gain of the amplifier, wherein the processor determines a reference level value for the output signal by providing a calibration signal to the detector and setting the reference level value based on the first signal.

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12 ~~13~~. (original) The circuit of Claim 11 ~~12~~, wherein the detector is a power detector and the first signal is based on an average power level of the output signal.

13 ~~14~~. (original) The circuit of Claim 11 ~~12~~, wherein the detector is a peak detector and the first signal is based on a peak amplitude level of the output signal.

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14~~15~~. (original) The circuit of Claim 11~~12~~, further comprising:

a digital-to-analog converter adapted to receive the calibration signal and provide the calibration signal as an analog signal to the detector; and

an analog-to-digital converter adapted to receive the first signal from the detector and provide the first signal as a digital signal to the processor.

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15~~16~~. (original) The circuit of Claim 11~~12~~, wherein the detector is a power detector comprising a low pass filter coupled to a correlator.

16~~17~~. (original) The circuit of Claim 11~~12~~, wherein the fine gain control signal is set to minimize an absolute value of the first signal minus a reference value.

17~~18~~. (original) The circuit of Claim 11~~12~~, wherein the amplifier comprises a gain stage, with the gain stage having a plurality of transconductance stages, wherein the fine gain control signal controls a bias current value for the transconductance stages and the coarse gain control signal controls which of the transconductance stages contribute to the gain of the amplifier.

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18 ~~19~~. (original) The circuit of Claim ~~18~~ 17, wherein the plurality of transconductance stages are associated with at least one load impedance.

19 ~~20~~. (original) The circuit of Claim ~~19~~ 18, wherein the load impedance comprises a shunt, a shunt-series, a series-shunt, a series-shunt-series, a T-coil, a T-coil with a cross-coupled capacitor, or a series-T-coil.

20 ~~21~~. (currently amended) A method of providing automatic gain control, the method comprising:

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providing a gain to an input signal to provide an output signal;

monitoring a power level of the output signal;

providing a calibration signal to the monitoring of the power level to calibrate a reference level for the automatic gain control; and

providing a coarse gain control and a fine gain control to control the gain based on the monitoring to maintain the output signal within a desired signal level range.

21 ~~22~~. (original) The method of Claim ~~21~~ 20, wherein the monitoring estimates an average power level of the output signal.

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22 ~~23~~. (original) The method of Claim 20 ~~21~~, further comprising calibrating the monitoring to obtain a reference level value, with the desired signal level range based on the reference level value.

23 ~~24~~. (original) The method of Claim 20 ~~21~~, wherein the gain is performed in stages, with the coarse gain control and the fine gain control controlling a gain of each of the stages.

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24 ~~25~~. (original) A method of calibrating and monitoring an automatic gain control circuit, the method comprising:

providing a calibration signal whose signal level is estimated to provide a reference value;

setting a range for an output signal based on the reference value;

providing a gain to an input signal to provide the output signal;

monitoring an output signal level of the output signal; and

adjusting a coarse gain of the gain to maintain the output signal within the range.

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25 ~~26~~. (original) The method of Claim 24 ~~25~~, further comprising setting a fine gain of the gain to minimize an absolute value of the power level of the output signal minus the reference value.

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26 ~~27~~. (original) The method of Claim 24 ~~25~~, wherein the monitoring estimates an average power level of the output signal.

27 ~~28~~. (original) The method of Claim 24 ~~25~~, wherein the monitoring estimates a peak amplitude signal level of the output signal.

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